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Agency IT Plan Contact Data

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Review of Agency's IT Architecture

The Industrial Commission of North Dakota includes the Industrial Commission Administration Office, Public Finance Authority and the Department of Mineral Resources which includes the Geological Survey and the Oil and Gas Division,

Executive Summary - The Industrial Commission of North Dakota consists of three elected officials -- the Governor, who serves as chairman, the Attorney General and the Agriculture Commissioner. The Administration Office coordinates the many responsibilities of the Commission including the establishment of policies and goals for the agencies that report to the Commission. Agencies overseen by the Commission include the Bank of North Dakota which includes the Guaranteed Student Loan Agency, Public Finance Authority, Farm Finance Agency, Housing Finance Agency, Mill and Elevator, Department of Mineral Resources which includes the Geological Survey and Oil and Gas Division, Lignite Research, Development & Marketing Program, Oil and Gas Research Council, Student Loan Trust, Transmission Authority and Building Authority.

Agency Vision - The Industrial Commission envisions a coordinated and efficient utilization of its resources to provide low cost financing for the State and its political subdivisions. The Commission envisions low cost financing being available for citizens who wish to seek a higher level of education. The Commission envisions a North Dakota that in cooperation with the private sector develops its natural resources in an environmentally sound, cost-effective manner, which is beneficial to all North Dakotans and future generations. The Commission envisions a citizenry knowledgeable in the State's natural resources.

Agency Philosophy - Through coordinated, cost effective methods, provide a low cost funding source to meet the State of North Dakota's capital needs and those of its political subdivisions. By utilizing the most cost-effective methods available, provide funding for all North Dakota students who wish to seek a higher level of education. In partnership with the private sector, preserve and enhance the production and marketing of the State's lignite resources. In partnership with the private sector, enhance the State's ability to transmit power generated from lignite and wind resources. Through coordinated, cost effective methods, provide the State with reliable and impartial information needed to

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describe, understand and apply geologic knowledge of North Dakota now and in the future for the economic benefit and enjoyment of the State's citizens. Through coordinated, cost effective methods, provide for the regulation of drilling, development and production of oil and gas and other mineral resources in an environmentally sound manner that is most beneficial to the producer, royalty owner and all the citizens of North Dakota.

The Department of Mineral Resources consists of two divisions-- Geological Survey and Oil and Gas.

The Geological Survey is funded by an appropriation from the General Fund. Studies conducted and provided to industry generate significant revenue for the State of North Dakota, but actual dollar figures are difficult or impossible to determine. This is because the revenues resulting from oil-industry leasing, drilling, and production that are based on the results of Survey studies cannot be easily calculated. This is also true for the other minerals the Geological Survey regulates and studies.

The Oil and Gas Division is funded by an appropriation primarily from the General Fund. The Division is responsible for geological and engineering expertise required by the Industrial Commission for decision-making responsibilities and enforcement of statutes, rules, regulations, and orders pertaining to the drilling for and production of oil and gas, and the disposal of oil field brines and other fluid wastes by injection into the subsurface.

The Public Finance Authority (formerly known as the Municipal Bond Bank), which is under the operation, control and management of the Industrial Commission of North Dakota, is a self-supporting state agency. The costs and expenses for operating the Public Finance Authority are financed with earnings on program assets and fees paid by participating political subdivisions.

The Administration Office's local area network consists of a server/workstation, workstation, two printers and a scanner. The Public Finance Authority (PFA) has a network

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consisting of a server, three workstations and two printers. Each employee can access word processing and spreadsheet applications, e-mail and the internet from their workstation.

Technology allows the PFA to track all loan and bond activity, invoice loan payments and prepare financial statements and other management reports on a timely basis.

The North Dakota Geological Survey maintains its IT systems on a Local Area Network (LAN). Our IT system consists of PCs within the office combined into an administrative system. The administrative system is used for desktop publishing, computer-assisted drafting, regulatory duties, Geographic Information System (GIS), and a variety of other functions. The Geological Survey is maintaining its web sites and designing a publications and fossil database to allow better access by the public.

The Oil and Gas Division continues to incorporate innovative ideas and state of the art technology to stay abreast with the growing demands placed upon it by industry, the public, and other state agencies. Currently the State Auditor (audit federal royalties), State Tax Department (audit production taxes), Health Department (air and water quality modeling), OMB, and Land Department (audit royalties) have access to and usage of all production data in the Oil and Gas Division computer database. Therefore, efficient and accurate data input and upgrading of current programs are important to the Oil and Gas Division, as well as other agencies of the State. The Division's technology plan continues to address the need to replace outdated equipment. The Division is continuing to develop a Geographic Information System using ESRI environmental Arc View GIS software, which will require further development and maintenance. The Division presently has GPS equipment that will need hardware and software upgrades. The Division also continues to develop our risk based database management system (RBDMS) which was started in 2001. The Division staff works closely with the Ground Water Protection Council (GWPC) and will further develop and maintain this system. To maximize use of laptops in the hands of each of our field inspectors in the three field offices (Dickinson, Williston, and Minot), the Division is designing the RBDMS database to reach a paperless inspection process. Each of the field inspectors is capable of entering inspection information directly into RBDMS in the field while accessing all information associated with each well to better serve each inspection. Upon returning to the field offices, the field inspector will update the main database in Bismarck with new data at the same time as receiving any updates entered in the system since the last time they attached to the network. There will be a continued need to replace and upgrade this hardware and software (laptops and RBDMS servers). Other programs in place that will continue to need equipment and software updates are,

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document scanning with storage and retrieval capabilities on CD ROM, Log Analysis & Digitizing programs and a log printer to make copies of well logs from digital data.

All the agencies included in this budget have websites to further facilitate communication with customers, agencies, political subdivisions, external consultants and the general public. In the future, the agencies will maintain current technology and constantly be looking to make innovative changes to enhance that technology.

The Public Finance Authority's mission is to develop rural and urban North Dakota by providing political subdivisions and other qualifying organizations access to flexible and competitive financing options for their local qualifying projects.

The Geological Survey's mission is three-fold: 1) to investigate and report the geology of North Dakota, emphasizing applied research leading to economic or quality-of-life improvements; 2) to provide public service by collecting, describing, and disseminating geologic and map-related information; and 3) to regulate coal and subsurface mineral exploration, geothermal energy, fossil resources, and oil-well core and sample data.

The Oil and Gas Division's mission is to encourage and promote the development, production, and utilization of oil and gas in the state in such a manner as will prevent waste, maximize economic recovery, and fully protect the correlative rights of all owners to the end that the landowners, royalty owners, producers, and general public realize the greatest possible good from these vital natural resources. The Industrial Commission will have modern, integrated IT tools that are well supported, easily and publicly accessible, accurate, and consistent.

Planned Infrastructure Activities and Changes

Utilize information tools that are standardized and well supported. Implement changes and adopt appropriate technologies to improve efficiency and public access. Continue to use the World Wide Web to disseminate information for public use. Continue to use electronic mail and Internet connectivity as the primary communication vehicle between

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consumers, the media and other state agencies requesting data concerning oil production and other geological questions. Continue to maintain and upgrade existing servers, desktops, laptops, digital cameras, projectors, printers, GPS hardware, and associated software as needed.

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1. If applicable, describe the reason for any extraordinary increase or decrease in your infrastructure costs.

Increase in activity in northwestern North Dakota due to increased oil production. Change in billing structure from ITD

2. Total number of desktop computers: 64
Number of desktops for which you are requesting replacement funding: 31
Average replacement cost/desktop: 2,100

3. Total number of laptop computers: 41
Number of laptops for which you are requesting replacement funding: 19
Average replacement cost/laptop: 2,200

What state planning region are these desktop/laptop computers located?

Region 1 1 2 1 3 0 4 1 5 0 6 0 7 1 8 1

4. What percentage of these pcs are running the following operating systems:

(total should be equal to 100%)

Open Source OS 0 %
MAC OS 0 %
Windows Vista 2 %
Windows XP 98 %
Other 0 %

5. What additional expenditures are being paid out of non-appropriated funds? 32,000

Please explain:

Computers, laptops servers to support RBDMS

IT Asset Management Plan

The Industrial Commission (IC) maintains an IT infrastructure supporting IC business processes. The infrastructure includes necessary technology to serve desktop, laptop, server, storage, and back-office needs for IC business functions. In addition to standard office automation peripherals such as printers and photo-copiers, the IC also maintains large format plotters and printers and large and small format scanners to address business requirements for the Commission's extensive legislative mandates in areas such as petroleum regulation, coal mining, uranium exploration, permitting of oil exploration sites, geothermal sites, monitoring of producing oil wells, injection wells, central tank battery measuring devices, and core samples.

The support of IC business functions requires systems supporting a wide variety of highly specialized technical professionals, including petroleum engineers, geologists, graphic information specialists, paleontologists, and soil scientists. Support of the wide variety of specialists requires a substantial and varied technological infrastructure. Due to the required business processes and the IC's business partners, the infrastructure and tool set provided must be current and in step with our business partners. The IC has four FTE's supporting this infrastructure and specialists utilizing the tools provided. One of the FTE's is a programmer/analyst, one FTE supports GIS application development and one FTE supports IT equipment maintenance supporting servers, desktops, laptops, printers, storage and back-office systems. The final FTE is Information Technology Administrator for the Department of Mineral Resources.

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Retention/recruitment

All outsourcing has been related to the Department of Mineral Resources' Risk Based Data Management System and has been provided by the Ground Water Protection Council. No recruiting of IT staff has been necessary. If recruiting becomes necessary we plan to utilize the services of HRMS and JSND to advertise and post openings as well as set up job and career fairs. The Department of Mineral Resources has monitored external market equity and provided workload and equity salary increases along with establishing policies for performance and retention bonuses. We plan to continue this program to the extent that funding is available.

Desktops/Laptops

The IC provides personnel with Microsoft windows XP in the 32-bit version operating system desktops and laptops. The replacement schedule for desktops and laptops varies from two to four years depending upon user application. The high-end systems supporting Petra, GIS, engineering and scientific systems are replaced on the shortest allowable schedule and are used as standard desktops for less intensive users. The IC also maintains a number of specialized workstations for specific applications or processes. These workstations primarily utilize XP. The replacement of these workstations is approximately two to four years on average. The IC maintains laptops for users frequently out of the office or those needing specialized field applications and systems, for example petroleum engineers or scientists working in the field and are replaced every two years and cycled into the office to support office personnel requiring laptops for intermittent field duty. Monitors are replaced as failures occur or after six years. The estimated monitor replacement is approximately 33.3% per biennium.

Scanners

The IC maintains two types of scanners. The first provides standard sized document scanning to support common business processes such as petroleum case management or permitting. The other is a large format scanner capable of scanning maps and other information up to 42" wide. The scanners are on a three to four year replacement schedule with the exception of the wide format scanner, which has a projected replacement schedule of six years.

Printers/Plotters

Printing technology has evolved significantly over the past decade, and the IC has consolidated the majority of the agency print services around two networked high-speed digital photocopiers. The agency still maintains two color laser printers. In addition, there are still workgroup printers available in several key areas for purposes of addressing user specific print functions.

In addition to the general-purpose business printing requirements, the IC will continue to require large format printing capabilities and are being supported with large format HP DesignJet plotters. The replacement cycle will be dictated by the life cycle of the plotter, which is governed by usage. Based upon current usage, it would be reasonable to assume that the replacement cycle will continue to range from six to 8 years.

Servers

The IC maintains the server infrastructure to support the agency data management and application requirements. Currently, the IC maintains file and application servers for standard business functions and high demand PETRA, engineering and scientific processes. The IC also maintains database, and WEB servers. Mail and anti-virus services are provided by ITD.

Unlike the desktops, monitors, and other peripherals, server replacement cycles are more often dictated by application requirements and software resource requirements than by equipment life cycles. It is common to upgrade or implement software changes that will vastly change the load and demand placed upon the server. Because server performance and reliability influence the productivity of all IC employees, replacement cycles are matched to the functions that the server provides. The application servers currently require greater performance with greater RAM requirements. These servers are generally replaced with an average replacement cycle of approximately every 3 to 5 years. Typically, the displaced servers are then re-conditioned to replace the role of the file server. As a result, the replacement cycle on average for all of the servers is between 3 and 5 years.

Storage

In addition to the storage that is attached to each desktop, laptop, and server that is replaced as the respective system is replaced, the IC also maintains a large storage infrastructure. With the overwhelming growth in storage requirements to address both the digital capture of historic and current scientific data resources and on-going GIS initiatives, the IC was required to address server storage. Internal server storage and direct attached storage did not provide the long-term expansion capabilities or effective management options to address the growing storage requirements for the agency.

Large storage is managed co-dependently with the server infrastructure, and as such, a replacement strategy has been developed that requires replacement of the existing disk and related subsystems every 3 to 5 years. Given the constant increases in density of storage, the replacement strategy is expected to be accelerated due to the necessary expansion of storage capacity needed to support the IC business processes.

Software

The IC maintains a policy to keep all software current. This policy is complicated by the need to maintain synchronous software deployment with the IC's business partners and federal oversight agency, Ground Water Protection Council (GWPC). Much of the software utilized by the IC's federal programs is provided by GWPC. IC experience indicates routine incremental upgrades are far less traumatic to business functions than larger periodic wholesale updates, providing improved productivity. Development platforms, databases, and other supporting systems are maintained at current stable release levels. Application development staff migrates and maintains applications in current development platforms and release levels. When a change in development platforms is, prudent applications will be migrated proactively to new technologies.

The varieties of software tools used within the agency include an array of different schedules and software maintenance issues. For many of the larger applications and software suites the agency is enrolled in annual maintenance agreements to maintain the current state of the software. The following is a list of core software, defined maintenance method and business processes supported:

- ☐ Petra
 - o IC has maintained Petra since 1999.
 - o Supports petroleum scientific research.
 - o Maintained through maintenance contracts at current stable versions.
- ☐ RBDMS
 - o IC has maintained RBDMS in conjunction with GWPC since 2000
 - o Primary critical data regulating North Dakota's oil and gas production
 - o Maintained through database development in conjunction with GWPC
- ☐ AutoCAD
 - o Supports GIS, and engineering business processes.
 - o Maintained through maintenance contracts at current stable versions
- ☐ ESRI GIS software
 - o Supports business processes throughout the agency.
 - o Primary critical application in analysis of oil field boundaries, well siting applications, and abandoned oil well reclamation projects.
 - o Maintained in sync with business partners
 - o Maintained through maintenance contract.
- ☐ SQL server environment
 - o Utilized since 2000
 - o Supports GWPC Risk Based Data Management System (RBDMS) application.
 - o Primary application in case management, permitting, testing and production monitoring.
 - o Maintained through GWPC contracts.
- ☐ Microsoft Suite

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- o Supports all business applications
 - o Maintained through maintenance contract.
- ☐ AccuMap
 - o Supports Oil Field and Petroleum exploration data.
 - o Maintained through maintenance contract.
- ☐ Various other technical or scientific process applications
 - o Maintained as needed dependent upon application and business requirements.

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		CURRENT APPROPRIATION	BUDGET REQUEST	OPTIONAL ADJUSTMENTS	REQUEST PLUS OPTIONALS	SUBSEQUENT BIENNIUM
IT5310	IT SOFTWARE AND SUPPLIES	\$32,800	\$36,075	\$8,150	\$44,225	\$44,225
IT5510	IT EQUIPMENT UNDER \$5000	\$120,020	\$111,192	\$23,640	\$134,832	\$134,832
IT6010	IT DATA PROCESSING	\$138,642	\$136,400	\$13,268	\$149,668	\$149,668
IT6020	IT COMMUNICATIONS	\$111,673	\$113,175	\$7,594	\$120,769	\$120,769
IT6030	IT CONTRACT SERVICES & REPAIRS	\$34,950	\$40,150	\$0	\$40,150	\$40,150
IT6930	IT EQUIPMENT OVER \$5000	\$26,500	\$0	\$18,000	\$18,000	\$0
	Total Budget:	\$464,585	\$436,992	\$70,652	\$507,644	\$489,644
001	STATE GENERAL FUND	\$400,101	\$387,408	\$53,062	\$440,470	\$422,470
305	INDUSTRIAL COMMISSION FUND 305	\$18,584	\$18,584	\$0	\$18,584	\$18,584
493	LANDS AND MINERALS TRUST FUND 493	\$7,400	\$0	\$17,590	\$17,590	\$17,590
900	PUBLIC FINANCE AUTHORITY	\$38,500	\$31,000	\$0	\$31,000	\$31,000
	Total Funding:	\$464,585	\$436,992	\$70,652	\$507,644	\$489,644